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June 2, 1981
EF2 - 53,427



Mr. L. L. Kintner
Division of Project Management
Office of Nuclear Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555



Dear Mr. Kintner:

Reference: Enrico Fermi Atomic Power Plant, Unit 2
NRC Docket No. 50-341

Subject: Response to Q. 411.23

Please find attached the Detroit Edison's response to Question 411.23 from the NRC Quality Assurance Branch. This information will be included in a forthcoming FSAR amendment. It should be noted that Table 3.2-1 is not a listing of safety related structures, systems and components but includes safety related structures, systems and components.

Sincerely,

W. F. Colbert
Technical Director
Fermi 2 Project

WFC/AEW:jl
Attachment

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NRC OPEN ITEM - "Q" LIST

REQUEST FOR ADDITIONAL INFORMATION

ENRICO FERMI 2 NUCLEAR POWER PLANT

411.0 Quality Assurance Branch

411.23 Section 17.1.2.2 of the standard format (Regulatory Guide 1.70) requires the identification of safety-related structures, systems and components controlled by the quality assurance program. You are requested to supplement and clarify the Fermi 2 list in Table 3.2-1 of the FSAR in accordance with the following:

- a. The following items do not appear in Table 3.2-1 of the FSAR. Add the appropriate items to Table 3.2-1 and provide a commitment that the remaining items are subject to the pertinent requirements of the FSAR operational quality assurance program or justify not doing so.

Item 1: List of items provided in a document titled "Summary List - QA Level 1 ('Safety-Related') Systems, Structures, and Major Components."

Answer: All items listed in the document titled "Summary List - QA Level 1 ('Safety Related') System, structures, and major components." are already included in Table 3.2-1 with the exception of the following non QA 1 items:

- o Feedwater Control System
- o Standby Liquid Control System Instrumentation Power Supply and Instrumentation
- o Primary Containment and Reactor Vessel Isolation Control System Isolation Initiation Channels
- o Fuel Pool Cooling and Cleanup System Vacuum Breaker Valves

Item 2: Biological shielding within reactor building, auxiliary building, radwaste building, and control center complex.

Answer: Biological (sacrificial) shield wall, reactor building, auxiliary building, and control center complex radiation shielding are being added to table 3.2-1, Section XXXVI.

Item 3: Missile barriers within reactor building, auxiliary building, control center complex, and RHR complex.

Answer: This item is contained in Table 3.2-1, Section XXXVI, as part of Item 2, 3, and 7.

Item 4: MSIV leakage control system

- a) Piping, within RCPB isolation valves.
- b) Piping, other upstream system lines.
- c) Piping, downstream system from steamline.
- d) Piping, other downstream system from steamline.
- e) Valves, within RCPB.
- f) Valves, other.
- g) Heater.
- h) Blowers.

Answer: This item is being added to Table 3.2-1, Section XLI with the exception of c, d, g and h which are not applicable to Fermi.

Item 5: Main steam piping to turbine stop valves.

Answer: This piping is included in Table 3.2-1, Section XXXII, Item 1. However, this item is being revised to read "Main steam piping to third MSIV".

Item 6: Piping and valves, main steam branches.

Answer: This piping is included in Table 3.2-1, Section XXXII, Item 2. However, this item is being revised to read "Piping and valves, main steam branches upstream of third MSIV to the first isolation valve.

Item 7: Main steam dump line and valve.

Answer: This piping is deleted from Table 3.2-1, due to the addition of the third MSIV.

Item 8: Spent fuel pool and liner, dryer/separator pool.

Answer: This item is included in Table 3.2-1 Section XXXVI, Item 2.

Item 9: Nuclear boiler system - mechanical modules and instrumentation with safety function.

Answer: This item is included in Table 3.2-1 Section II, Item 13.

Item 10: Residual heat removal system - mechanical modules.

Answer: This item is included in Table 3.2-1, Section IX, Item 10.

Item 11: HPCI booster pump.

Answer: This item is included in Table 3.1-2, Section XI, Item 8.

Item 12: Fuel preparation machine.

Answer: This item is included in Table 3.2-1, Section XIII, Item 1.

Item 13: General purpose grapple.

Answer: This item is included in Table 3.2-1, Section XIII, Item 2.

Item 14: Steam line plugs.

Answer: This item is included in Table 3.2-1 Section XIV, Item 1.

Item 15: Dryer and separator sling.

Answer: This item is included in Table 3.2-1 Section XIV, Item 2.

Item 16: Dryer and head strongback.

Answer: This item is included in Table 3.2-1, Section XIV, Item 2.

Item 17: Control rod grapple.

Answer: This item is contained in Table 3.2-1, Section XV, Item 1.

Item 18: Refueling equipment platform assembly.

Answer: This item is contained in Table 3.2-1, Section XVI, Item 1.

Item 19: Fuel storage racks.

Answer: This item is contained in Table 3.2-1, Section XVII, Item 1.

Item 20: Defective fuel storage container.

Answer: This item is contained in Table 3.2-1 Section XVII, Item 2.

Item 21: Sacrificial shield.

Answer: See Item 2.

Item 22: Stabilizer truss system - earthquake (FSAR Section 3.8).

Answer: Reactor vessel stabilizer truss are being added Table 3.2-1, Section I.

Item 23: Support truss system - pipe break (FSAR Section 3.8).

Answer: Support truss system is being added to Table 3.2-1, Section XXXVI.

Item 24: Safety-related masonry walls (see IE Bulletin 80-11).

Answer: Safety-related masonry walls are being added to Table 3.2-1, Item XXXVI.

Item 25: Containment isolation valves for the

- a) MSIV leakage control system
- b) Feedwater system
- c) RHR to containment spray header

Answer: This item is included in Table 3.2-1 under the appropriate system.

Item 26: Containment/drywell hydrogen monitoring system.

Answer: Containment/drywell hydrogen monitoring system is not safety-related and is not added to Table 3.2-1. This item is being added to the operational QA program.

Item 27: Primary containment vacuum breakers.

Answer: Primary containment vacuum breakers is included in Table 3.2-1, Section XXVIII, as part of Item 1.

Item 28: Automatic depressurization system.

Answer: Automatic depressurization system is included in Table 3.2-1, Section II.

Item 29: MSIV leakage control system.

Answer: See Item 4.

Item 30: Leak detection system.

Answer: Leak detection is included in the appropriate system under the heading electrical modules.

Item 31: Radiation monitoring (fixed and portable).

Answer: Radiation monitoring is considered to be part of the Process Radiation Monitoring System. Safety-related monitors are listed in Table 3.2-1, Section VIII, non-safety related monitors are being included in the operational QA program.

Item 32: Radioactivity monitoring (fixed and portable).

Answer: Radioactivity monitoring is considered to be part of the Process Radiation Monitoring System-Gaseous effluents. Radioactivity monitoring equipment is not safety-related and is not being added to Table 3.2.1. This item is being added to the operational QA program.

Item 33: Radioactivity sampling (air, surfaces, liquids).

Answer: Radioactivity sampling is considered to be part of the Process Radiation Monitoring System-Gaseous effluents. Radioactivity sampling equipment, is not safety-related and is not being added to Table 3.2-1. This item is being added to the operational QA program.

Item 34: Radioactive contamination measurement and analysis.

Answer: Radioactive contamination measurement and analysis is considered as part of the Health Physics system. Radioactive contamination measurement and analysis is not safety related and is not being added to Table 3.2-1. This equipment is being added to the operational program.

Item 35: Personnel monitoring internal (e.g. whole body counter) and external (e.g., TLD system).

Answer: Personnel monitoring is considered to be part of the Health Physics System. This equipment is not safety-related and not being added to Table 3.2-1. Item is being added to the operational QA program.

Item 36: Instrument storage, calibration, and maintenance.

Answer: Instrument storage, calibration, and maintenance items are controlled by plant procedures. Table 3.2-1 contains systems, structures, and components, therefore these items are not being added to Table 3.2-1. These item are being added to the operational QA program.

Item 37: Decontamination (facilities, personnel, and equipment).

Answer: Decontamination is not a safety-related function and is not being added to Table 3.2-1. This item is being added to the operational QA program.

Item 38: Respiratory protection, including testing.

Answer: Respiratory protection is not a safety-related item, and is not being added to Table 3.2-1. This item is being added to this operational QA program.

Item 39: Contamination control.

Answer: Contamination control is regulated by plant procedures, and is not being added to Table 3.2-1. This item is being added to the operational QA program.

Item 40: Radiation shielding.

Answer: Radiation shielding includes primary containment, reactor building, auxiliary building, masonry walls, and sacrificial shield wall are currently included in Table 3.2-1, Item XXXVI.

Item 41: Meteorological data collection programs.

Answer: Meteorological data is not classified as safety equipment and is not added to Table 3.2-1. This item is being added to the operational QA program.

Item 42: Breakwater.

Answer: Breakwater is included in Table 3.2-1, Section XL.

Item 43: Feedwater spargers.

Answer: Feedwater spargers are not classified as safety related equipment and are not being added to Table 3.2-1.

Item 44: Expendable and consumable items necessary for the functional performance of safety-related structures, systems, and components (i.e. weld rod, fuel oil, boric acid, snubber oil, etc.)

Answer: These items are bought to plant specifications. They are not being added to Table 3.2-1.

Item 45: Measuring and test equipment used for safety-related structures, system, and components.

Answer: This equipment is not considered safety-related and is not being added to Table 3.2-1. This equipment is added to the operational QA program.

Item 46: Air pressurization system (with its associated piping and instrumentation) used in the operation of the main steam line isolation valve leakage control system.

Answer: Air presurization system is being added in Table 3.2-1, Section XLI.

Item 47: Charcoal adsorber units, duct work, and other system components related to the control room pressurization and recirculation system.

Answer: This item is included in Table 3.2-1, Section XXXIX.

Item 48: Chlorine and radiation monitors associated with the control room ventilation system.

Answer: Radiation Monitors are categorized as part of the Process Radiation System. Table 3.2-1 is updated to include this item. Chlorine detectors are not safety-related and are not being added to Table 3.2-1, but they will be added to the operational QA program.

- b. The following items from Table 3.2-1 need expansion and/or clarification as noted. Revise the list as indicated or justify not doing so.

Item 1: Control center complex (including the cable spreading room) should be under the controls of the operational quality assurance program (XXXVI-6).

Answer: Control center complex is included in Table 3.2-1 and is under the controls of the operational quality assurance program.

Item 2: CRD hydraulic system containment isolation valves should be under the controls of the operational quality assurance program (IV-1).

Answer: Not applicable to Fermi, CRD return line and associate isolation valves were deleted.

Item 3: Neutron monitoring system TIP piping and containment isolation valves should be under the controls of the operational quality assurance program (VI-1 & 2).

Answer: Neutron monitoring system TIP piping and containment isolation valves are included in Table 3.2-1 and is being added to operational quality assurance program.

Item 4: Identify the safety-related instrumentation and control systems to the same scope and level of detail as provided in Chapter 7 of the FSAR.

Answer: Safety-related instrumentation and control systems and components are identified in detail in Chapter 7 of the FSAR.

Item 5: Item VI, Neutron Monitoring System, should include sub-item 5, Instrumentation and Control for Rod Block Monitoring System and Rod Sequence Control System.

Answer: This item is being added to Table 3.2-1, Section VI, Item 5.

Item 6: Item XVI, Refueling Equipment, should include sub-item 3, Instrumentation and Control for Refueling Interlocks.

Answer: This item is not safety related and therefore is not being added to Table 3.2-1. This item is being added to the operational QA program.

Item 7: Item XIX, Reactor Water Cleanup System, should include sub-item 9, Instrumentation and Control for Demineralized Water Make-up and Ultimate Heat Sink.

Answer: This item is not applicable to Fermi.

Item 8: Item XXXIV, AC Power System, should be expanded to include

- a) Diesel generator packages including auxiliaries (e.g. lube system, jacket cooling, air start system, governor, voltage regulator, excitation system).
- b) 4160 volt switchgear.
- c) 480V load centers.
- d) 480V motor control centers.
- e) Instrumentation, control, and power cables (including underground cable system, cable splices, connectors, and terminal blocks).
- f) Conduit and cable trays and their supports. (Installations containing class 1E cables and other installations whose failure may damage other safety-related items.)
- g) Transformers.
- h) Valve operators.
- i) Protective relays and control panels.
- j) AC control power inverters.
- k) 120V AC vital bus distribution equipment.
- l) Containment electrical penetration assemblies.
- m) Other cable penetrations (fire stops).

Answer: The safety-related items in the above list will be added to Table 3.2-1, Section XXXIV. AC control power inverters are not applicable to Fermi. However, Fermi uses small AC control power inverter dedicated to specific systems and are considered as instruments in the system.

For Item (f) only the support for the conduit and cable trays are safety related.

- Item 9: Item XXXV, DC Power Systems, should be expanded to include
- a) 125V batteries, battery chargers, and distribution equipment.
 - b) Cables.
 - c) Conduit and cable trays and their supports. (Installations containing class 1E cables and other installations whose failure may damage other safety-related items.)
 - d) Battery racks.
 - e) Protective relays and control panels.

Answer: The safety-related items of the above are being added to the table. For Item (f) only the conduit and cable tray supports are safety-related.

Item 10: Just as Item VIII addresses Process Radiation Monitors, an item should be added to address Effluent Radiation Monitors.

Answer: This item is being added to Table 3.2-1.

Item 11: Item XXIII, Off-Gas System, should include sub-item 9, Steam Jet Ejectors.

Answer: Steam jet air ejectors are not safety-related and are not added to Table 3.2-1.

Item 12: Items XXVIII, Primary Containment Atmosphere Control System, and XXXI, ECCS Equipment Area Cooling System should each include sub-item 2, All Other Components.

Answer: This item is not being added to the Table 3.2-1. All components with safety function have been included in the table.

Item 13: Item XXIX, Standby Gas Treatment System, should be clarified to include the deep bed charcoal absorbers and duct work.

Answer: This item is not being added to Table 3.2-1. All components with safety function have been included in the table.

- c. Enclosure 2 of NUREG-0737, "Clarification of TMI Action Plan Requirements" (November 1980) identified numerous items that are safety-related and appropriate for OL application and therefore should be on the Q-list. These items are listed below. Add the appropriate items to the Q-list and provide a commitment that the remaining items are subject to the pertinent requirements of the FSAR operational QA program or justify not doing so.

Item 1: Plant-safety-parameter display console. (I.D.2)

Answer: Not safety-related.

Item 2: Reactor coolant system vents. II.B.1

Answer: No equipment changes are necessary.

Item 3: Plant shielding. II.B.2

Answer: Shielding is being added to Table 3.2-1.

Item 4: Post accident sampling capability. II.B.3

Answer: Table 3.2-1 will be revised to reflect the additional equipment.

Item 5: Valve position indication. II.D.3

Answer: This item is included in Table 3.2-1, Section II, Item 13 and 14.

Item 6: Dedicated hydrogen penetrations. II.E.4.1

Answer: This item is adequately covered in Table 3.2-1, Section XXXVI.

Item 7: Containment isolation dependability. II.E.4.2

Answer: No additional equipment is required. Existing equipment are covered under the appropriate section of Table 3.2-1.

Item 8: Accident monitoring instrumentation. II.F.1

Answer: Table 3.2-1 will be revised for QA I equipment as needed.

Item 9: Instrumentation for detection of inadequate core-cooling.

Answer: This activity is under review by BWR Owners Group.

Item 10: HPCI and RCIC initiation levels. II.K.3(13)

Answer: No equipment changes required, logic changes only.

Item 11: Isolation of HPCI and RCIC. II.K.3(15)

Answer: Equipment changes required are included in the appropriate section of Table 3.2-1.

Item 12: Challenges to and failure of relief valves. II.K.3(16)

Answer: No equipment changes required at this time, logic changes only.

Item 13: ADS actuation. II.K.3(18)

Answer: This equipment is included in the Table 3.201, Section II, Item 14.

Item 14: Restart of core spray and LPCI. II.K.3(21)

Answer: No equipment changes required, logic changes only.

Item 15: RCIC suction. II.K.3(22)

Answer: Equipment is included in Section XII, Item 10, Table 3.2-1.

Item 16: Space cooling for HPCI and RCIC. II.K.3(24)

Answer: No equipment changes required.

Item 17: Power on pump seals. II.K.3(25)

Answer: No equipment changes required.

Item 18: Common reference level. II.K.3(27)

Answer: No equipment changes required.

Item 19: ADS valve, accumulators, and associated equipment and instrumentation. II.K.3(28)

Answer: Not applicable to Fermi.

Item 20: Emergency plans.

III.A.1.1/III.A.2

Answer: Emergency plans meet criteria of NUREG 0654.

Item 21: Emergency support facilities.

III.A.1.2

Answer: These facilities meet NUREG 0696 requirements.

Item 22: Inplant I₂ radiation monitoring.

III.D.3.3

Answer: See Part a, Item 31.

Item 23: Control-room habitability.

III.D.3.4

Answer: No equipment changes required at this time.

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
I. Reactor System							
1. Reactor vessel	GE	C	I	A	S	III-A	
2. Reactor vessel support	GE	C	I	NA	S	None	
3. Reactor vessel appurtenances pressure retaining portions	GE	C	I	A	S	III-A	
4. CRD housing supports	GE	C	I	NA	S	None	
5. Reactor internal structures, engineered safety features	GE	C	I	NA	S	None	
6. Reactor internal structures, other	GE	C	I	NA	S	None	
7. Control rods	GE	C	I	NA	S	None	
8. Control rod drives	GE	C	I	NA	B	None	
9. Core support	GE	C	I	A	S	III-A	
10. Power range detector hardware	GE	C	I	NA	S	None	
11. Fuel assemblies	GE	C	I	A	S	III-A	(h)
12. REACTOR VESSEL STABILIZER	GE	C	I	NA	B	None	
II. Nuclear Boiler System	GE	C	I	NA	S	NONE	
1. Vessels, level instrumentation chambers	GE	C	I	A	S	III-A	
2. Vessels, air accumulators	E	C, R	I	C	B	III-3	
3. Piping, relief valve discharge	E	C	I	C	B	III-3	
4. Piping, main steam, within outermost isolation valve	GE	C	I	A	S	B31.7-1	
5. Pipe supports, main steam	GE	C	I	NA	S	B31.7-1	
6. Pipe restraints, main steam	E	C, R	I	NA	B	None	
7. Piping, other within outermost isolation valves	E	C, R	I	A	B	III-1	(h)
8. Piping, instrumentation beyond outermost isolation valves	E	R, T	NA	D	S	B31.1.0	(h)
9. Relief valves	GE	C	I	A	S	RPVC-1	

Notes appear as separate list at end of table

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks (h)
10. Valves, main steam isolation valves	GE	C	I	A	S	NPVC-1	
11. Valves, other, isolation valves and within	E	C	I	A	B	III-1	(h)
12. Valves, instrumentation beyond outermost isolation valves	E	R,T	NA	D	S	B16.5	(h)
13. Mechanical modules, instrumentation, with safety function INSTR	GE	C R	I	NA	S	None	
14. Electrical modules, with safety function A	GE, E	C, R, A	I	HA	S	None	
15. Cable, with safety function	E	C, R, A	I	HA	U	IEEE/ICC/MG-12-32	
III. Reactor Recirculation System							
1. Piping	GE	C	I	A	S	B31.7-1	(h)
2. Pipe suspension, recirculation line	GE	C	I	HA	S	E31.7-1	
3. Pipe restraints, recirculation line	GE	C	I	HA	S	None	
4. Pumps	GE	C	I	A	S	NPVC-1	
5. Valves	GE	C	I	A	S	NPVC-1	(h)
6. Motor, pump	GE	C	I	NA	S	None	
7. Electrical modules, with safety function	GE	C, R	I	NA	S	None	
8. Cable with safety function	E	R, A	I	NA	B	IEEE/ICC/MG-12-32	
IV. CRD Hydraulic System							
1. Valves, isolation, water return line	E	C, R	I	A	S	III-1	
2. Valves	GE	R	I	B	S	III-2	(h)
3. Valves, other	E	R	HA	D	S	B16.5	(h)

Notes appear as separate list at end of table

EF-2-FSAR

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
4. Piping, water return line within isolation valves	E	C, R	I	X	B	III-1	
5. Piping, scram discharge volume lines	E	R	I	B	B	III-2	
6. Piping, insert and withdraw lines	E	C, R	I	B	B	III-2	
7. Piping, other	E	R	NA	D	S	B31.1.0	(h)
8. Hydraulic control unit	GE	R	I	NA	S	None	(i)
9. Electrical modules, with safety function	GE	R	I	NA	S	None	
10. Cable, with safety function	E	R, A	I	NA	B	IEEE/ICC/MG-12-32	
V. Standby Liquid Control System							
1. Standby liquid control tank	GE	R	I	D	S	API 650	(c)
2. Pump	GE	R	I	C	S	NPVC-2	
3. Pump motor	GE	R	I	NA	S	None	
4. Valves, explosive	GE	R	I	C	S	NPVC-2	
5. Valves, isolation and within	E	C, R	I	A	B	III-1	(h)
6. Valves, beyond isolation valves	E	R	I	C	B	III-3	(h)
7. Piping, within isolation valves	E	C, R	I	A	B	III-1	(h)
8. Piping, beyond isolation valves	E	R	I	C	B	III-3	(h)
9. Electrical modules, with safety function	GE	R	I	NA	S	None	
10. Cable, with safety function	E	C, R, A	I	NA	B	IEEE/ICC/MG-12-32	
VI. Neutron Monitoring System							
1. Piping, TIP	GE	R	I	B	S	B31.7-2	
2. Valves, isolation, TIP subsystem	GE	R	I	B	S	NPVC-2	
3. Electrical modules, IPP and APRM	GE	C	I	NA	S	None	
4. Cable, IRM and APRM	E	C, P, A	I	NA	B	IEEE/ICC/MG-12-32	
5. INSTRUMENTATION & CONTROL ROD BLOCK MONITORING & ROD SEQUENCE CONTROL SYSTEM	GE	R	I	NA	S		

Notes appear as separate list at end of table

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
VII. Reactor Protection System							
1. Electrical modules	X	E.T.	I	NA	S	None	
2. Cable	E	C.T.R.A.	I	NA	P	IEEE/ICC/MG-12-32	
VIII. Process Radiation Monitors							
1. Electrical modules, main steam line end-module <i>FUEL</i>							
<i>POOL EXHAUST</i> ventilation monitors <i>AND CONTROL CENTER ENERGY A/R</i>							
2. Cable, main steam line end-module <i>FUEL</i> <i>POOL</i>							
ventilation monitors <i>AND CONTROL CENTER ENERGY A/R</i>							
<i>EXHAUST</i>							
3. <i>MECH. MODULES, INSTRUMENTS</i>	<i>G/E</i>	<i>R,T</i>	<i>I</i>	<i>NA</i>	<i>S</i>	<i>None</i>	

IX. Residual Heat Removal System

1. Heat exchangers, primary side GE
2. Heat exchangers, secondary side GE
3. Piping, within outermost isolation valves E
4. Piping, beyond outermost isolation valves E
5. Pumps GE
6. Pump motors GE
7. Valves, isolation, LFC line, head spray, test section E
8. Valves, isolation, other E
9. Valves, beyond isolation valve E
10. Mechanical modules, INSTRUMENTAL GE
11. Electrical modules, WITH SAFETY FUNCTION GE
12. Cable, with safety function E

INSTRUMENT

Notes appear as separate list at end of table

TACS SECTION, CONTAINMENT SPRAY, & TEST LINES

III-C	S	B	E	R	GE	
TEVA-C	S	C	R	R	GE	
VIII 6	S					
TEVA-C	S	A	C.R.	C.R.	E	(h)
III-1	S	B	R	R	E	(h)
III-2	S	NA	R	R	GE	(h)
MPVC-2	S					
None	S					
III-1	S	A	C.R.	C.R.	E	(h)
III-2	S	B	R	R	E	(h)
None	S	NA	R	R	E	(h)
None	S	NA	R.A.	R.A.	E	(h)
IEEE/ICC/MG-12-32	S					

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
X. Core Spray							
1. Piping, within outermost isolation valves	E	C,R	I	A	B	III-1	(h)
2. Piping, beyond outermost isolation valves	E	R	I	B	B	III-2	(h)
3. Pumps	GE	R	I	B	S	NPVC-2	
4. Pump motors	GE	R	I	NA	S	None	
5. Valves, isolation and within	E	C,R	I	A	B	III-1	(h)
6. Valves, beyond outermost isolation valves	E	R	I	B	B	III-2	(h)
7. Electrical modules with safety function	GE	R	I	NA	S	None	
8. Cable, with safety function	E	C,R,A	I	NA	B	IEEE/ICC/MG-12-32	
9 MECH. MODULES INSTRUMENTS WITH SAFETY FUNCTION	GE	R	I	NA	S	NONE	
XI. High Pressure Coolant Injection							
1. Steam turbine	GE	R	I	NA	S	None	(j)
2. Piping, suction line from condensate storage tank	E	R,O	I	B	B	III-2	(h)
3. Piping, turbine steam supply and discharge	E	R	I	B	B	III-2	
4. Piping, return test line to condensate storage tank beyond second isolation valve	E	R,O	I	D	S	B31.1.0	
5. Piping, within outermost isolation valve	E	C,R	I	A	B	III-1	
6. Piping, suppression pool suction and pump discharge	E	R	I	B	B	III-2	(h)
7. Main pump	GE	R	I	B	S	NPVC-2	
8. Prooster pump	GE	R	I	B	S	NPVC-2	
9. Valves, beyond outermost isolation valves	E	R	I	B	B	III-2	
10. Valves, outer isolation and within	E	C,R	I	A	B	III-1	(h)

Notes appear as separate list at end of table

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TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
11. Valves, beyond isolation valves, motor operated	E	R	I	B	B	III-2	(h)
12. Electrical modules, with safety function	GE	A	I	NA	S	None	
13. Electrical auxiliary equipment	GE	A	I	NA	S	None	
14. Cable with safety function	E	R,A	I	NA	B	IEEE/ICC/MG-12-32	
XII. Reactor Core Isolation Cooling System	GE	A	I	NA	S	NONE	
1. Piping, within outermost isolation valves	E	C,R	I	A	B	III-1	(h)
2. Piping, beyond outermost isolation valves	E	R	I	B	B	III-2	(h)
3. Piping, return test line to condensate storage tank beyond second isolation valve and vacuum pump discharge line to containment isolation valves	E	P,O,A	I	D	S	B31.1	(h)
4. Pumps	GE	A	I	B	S	NPVC-2	
5. Valves, isolation and within	E	C,R	I	A	B	III-1	(h)
6. Valves, other	E	R	I	B	B	III-2	(h)
7. Turbine	GE	A	I	NA	S	None	(j)
8. Electrical modules, with safety function	GE	A	I	NA	S	None	
9. Cable, with safety function	E	R,A,O	I	NA	B	IEEE/ICC/MG-12-32	
10. Piping, suction line from condensate storage tank	E	R,O	I	B	B	III-2	(h)
11. MECH. MODULES, INSTR. WITH SAFETY FUNCTION	GE	A	I	NA	S	NONE	

Notes appear as separate list at end of table

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TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)		Scope of (b) Supply	Location (c)	Category (d)	Quality (e) Group Classification	Quality (f) Assurance Requirements	Principal (g) Construction Code	Remarks
XIII. Fuel Service Equipment								
1. Fuel preparation machine		GE	C,R	I	NA	E	None	
2. General purpose grapple		GE	C,R	I	NA	S	None	
XIV. Reactor Pressure Vessel Service Equipment								
1. Steam line plugs		GE	C	I	NA	S	None	
2. Dryer and separator sling and head strongback		GE	C	I	NA	S	None	
XV. In-Vessel Service Equipment								
1. Control rod grapple		GE	C	I	NA	E	None	
XVI. Refueling Equipment								
1. Refueling equipment platform assembly		GE	C	I	NA	S	None	
2. Refueling bellows		E	C	I	B	B	III-2	
XVII. Storage Equipment								
1. Fuel storage racks		GE	C,R	I	NA	E	None	
2. Defective fuel storage container		GE	R	I	NA	E	None	
XVIII. Radwaste System								
1. Tanks, atmospheric vessels		E	W	NA	C,C	S	API-650 & III-B & 8.96.1, VIII	
2. Heat exchangers and evaporators		E	W	NA	C,D	S	VIII & TEMA-C	(h)
3. Piping and valves		E	C,R,W	NA	C,D	S	III-3,831.1.0	(h)
4. Pumps		E	W	NA	C,D	S	III-3,831.1.0	(h, h)
5. Valves, containment isolation		E	C,R	I	B	B	III-2	(h)
6. Valves, flow control and filter system		E	W	NA	C,D	S	III-3,831.1.0	(h)

Notes appear as separate list at end of table

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component ^(a)		Scope of ^(b) Supply	Location ^(c)	Category ^(d)	Quality ^(e) Group Classification	Quality ^(f) Assurance Requirements	Principal ^(g) Construction Code	Remarks
7. Valves, other		E	W	NA	D	S	B31.1.0	
8. Mechanical modules		E	W	NA	D	S	None	(k)
XIX. Reactor Water Cleanup System								
1. Vessels: filter/ demineralizer		GE	R	NA	C	S	III-3	
2. Heat exchangers, regenerating		GE	R	NA	C	S	III-3 TEMA-R	
nonregenerating	tube side	GE	R	NA	C	S	III-3 TEMA-R	
	shell side	GE	R	NA	D	S	VIII TEMA-R	
3. Piping, within outermost isolation valves			C, R	I	A	B	III-1	
4. Piping, beyond outermost isolation valves		E	R	NA	D	S	B31.1.0	(h, l)
5. Pumps		GE	R	NA	D	S	NPVC-3	(l)
6. Valves, isolation valves and within		E	C, R	I	A	B	III-1	(h, l, n)
7. Valves, beyond outermost isolation valves		GE	R	NA	D	S	NPVC-3	(h, l)
		E	R	NA	D	S	B16.5	(h, l)
8. Mechanical modules		GE	R	NA	NA	S	None	(n, l)
XX. Fuel Pool Cooling and Cleanup System								
1. Vessels, filter/demineralizers		GE	W	NA	C	S	NPVC-3	
2. Vessels, other		E	W	NA	NA	S	None	
3. Heat exchangers		GE	R	NA	C	S	VIII TEMA-R	
4. Piping		E	W, R	NA	C	S	III-3	(h)
5. Pumps		GE	R	NA	C	S	NPVC-3	(h)
6. Valves		E	W, R	NA	C	B	III-3	(h)
XXI. Main Control Room Panels								
1. Electrical modules, with safety function		GE	A	I	NA	B	None	
2. Cable, with safety function		E	A	I	NA	B	IEEE/ICC/MG-12-32	

Notes appear as separate list at end of table

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
XXII. Local Panels and Racks							
1. Electrical modules with safety function	GE	R,A,W	I	NA	S	None	
	E	R,A,W,H	I	NA	B	None	
2. Cable, with safety function	E	P,A,W,H	I	NA	B	IEEE/ICC/MG-12-32	
XXIII. Off-Gas System							
1. Tanks	E	T	NA	D	S	VIII	
						VIII, TEMA-C	
2. Heat exchangers	E	T	NA	D	S	III-3	
3. Piping	E	T	NA	C	S	B31.1.0	
4. Pumps	E	T	NA	C	S	None	
5. Valves, flow control	E	T	NA	C	S	None	
6. Valves, other	E	T	NA	C	S	None	
7. Mechanical modules, with safety function	E	T	NA	NA	S	None	
8. Pressure vessels	E	T	NA	D	S	VIII	
9. STEAM/JET PUMP EJECTORS	E	T	NA	D	S	VIII	
XXIV. RHR Service Water System							
1. Piping	E	H,O,R	I	C	B	III-3	
2. Pumps	E	H	I	C	B	III-3	
3. Pump Motors	E	H	I	NA	B	None	
4. Valves	E	H,R	I	C	B	III-3	
5. Electrical Modules, with safety function	E	H	I	NA	B	None	
6. Cable, with safety function	E	H,O,R	I	NA	B	IEEE/ICC/MG-12-32	
7. MECHANICAL DRAFT COOLING SYSTEMS	E	H	I	NA	S	NONE	
XXV. Plant Service and Cooling Water Systems							
1. Piping and Valves forming part of primary containment boundary	E	C,R	I	B	B	III-2	

Notes appear as separate list at end of table

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)	Scale of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
XXVI. Instrument and Service Air System							
1. Vessels, accumulators, supporting safety-related systems	E	C, P	I	C	B	III-3	
2. Piping and valves in lines between above accumulators and safety-related systems	E	C, P	I	C	B	III-3	
3. Control Air Compressors	E		A, R	I	B	VIII	B 31.10, I
4. Control Air Dryers	E		A, R	I	B	VIII	B 31.1
5. Receiver Tanks	E		A, R	I	B	III-3	
6. Isolation Valves	E		A, R	I	B	III-3	
7. Press. Regulating Valves	E		A, R	I	B	III-3	
8. Mech. Modules with safety functions	E		A, R	I	B	NONE	
9. Electrical modules with safety functions	E		A, R	I	B	NONE	
10. Cable with safety functions	E		A, R	I	B		3FEEL/ICC/WG-12
6. CONTROL AIR AFTERCOOLER	E		A	I	B		

XXVII. Diesel-Generator Systems

1. Day tanks	E	H	I	C	B	III-3
2. Piping and valves, fuel oil system and diesel service water system	E	H	I	C	B	III-3 (see Fig. 9.5-2)
3. Pumps, fuel oil system and diesel service water system	E	H	I	C	B	III-3 (see Fig. 9.5-2)
4. Fuel oil system	E	H	I	C	B	None (see Fig. 9.5-2)
5. Pump motors, diesel service water system	E	H	I	NA	B	None
6. Diesel-generators	E	F	I	NA	B	None
7. Electrical modules with safety functions	E	H	I	HA	B	None
8. Cable, with safety functions	E	H,O,R	I	HA	B	IEEE/ICC/MC-12-32

XXVIII. Primary Containment Atmosphere Control System

1. Piping and valves from primary containment through outer isolation valve	E	R	I	B	B	III-2
---	---	---	---	---	---	-------

XXIX. Standby Gas Treatment System

1. Duct and valves upstream of filter units	E	R,A	I	D	B	B31.1.0
All other components	E	A	I	HA	E	None
2 COOLING & EXH. FAN	E	R	I	NA	B	
3 FILTER UNIT	E	R	I	NA	B	

Notes appear as separate list at end of table

XXIX. Handly, Das Treantly

2. Mech modules
with safety functions
3. Electrical modules
with safety functions
4. Cable with safety functions

E	R, A	I	NA	B	specification 3071-56
E	R, A	I	NA	B	specification 3071-56
E	R, A	I	NA	B	IEEE/ICC/US-12-32

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
XXX. Emergency Equipment Cooling Water System							
1. All components with safety functions	E	R	I	C	B	III-3	
XXXI. Emergency Core Cooling System Equipment Area Cooling System, HVAC							
1. All components with safety function	E	R	I	C	B	(See Table 3.2-2)	
XXXII. Power Conversion System							
1. Main steam piping to THIRD <i>MSIV turbine stop valves</i>	E	R,T	I	D ⁺	S	B31.10	(a)
2. Piping and valves, main steam branches <i>UPSTREAM OF BRANCH TO THE 1ST ISOLATION VALVE</i>	E	R,T	I	D ⁺	S	B31.1.0	(a)
3. Main Steam Dump Line & Valve	E	T	I	D ⁺	S	B31.1.0	(a)
4. Feedwater piping, <i>BEYOND OUTERMOST ISOLATION VALVE</i>	E	R,T	IIA	D	S	B31.1.0	(n,o)
XXXIII. Condensate Storage and Transfer System							
1. Condensate storage tank	E	O	NA	D	S	USAS B96.1	(p)
2. Piping and valves	E	H	NA	D	S	B31.1.0	
3. Other components	E	H	IIA	D	S	(See Table 3.2-2)	
XXXIV. Auxiliary AC Power System							
1. All components with safety function	E	A	I	C	B	IEEE-308	
2. Primary Electrical Penetrations	E	R	I	C	B	IEEE-344 III-NL, IEEE-317	
4 FEEDWATER PIPING, WITHIN OUTERMOST ISOLATION VALVE	E	CR	I	A	B	III-1	
5 VALVES, ISOLATION VALVES AND WITHIN	E	CR	I	A	B	III-1	
16) VALVES, BEYOND OUTERMOST ISOLATION VALVES	E	R,T	NA	D	S	B16.5	

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TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
<u>XXXIV</u> <u>AUXILIARY AC POWER (CONT)</u>							
3) Diesel generator packages including auxiliaries (e.g., lube system, jacket cooling, air start system, governor, voltage regulator, excitation system) <u>CONTROL AND RELAY PROTECTION EQUIPMENT</u>	E	H	I	NA	B		
4b) 4160 volt switchgear.	E	A, H	K	NA	S		
5d) 480V load centers.	E	A, H	K	NA	S		
6d) 480V motor control centers.	E	A, E, H	I	NA	S		
7e) Instrumentation, control, and power cables (including underground cable system, cable splices, connectors, and terminal blocks).	E	ALL	NA	NA	S		
8f) Conduit and cable trays and their supports. (Installations containing class 1E cables and other installations whose failure may damage other safety-related items.)	E	ALL	I	NA	S		
9d) Transformers.	E	A, H	K	NA	S		
10h) Valve operators.	E	ALL	I		S		
11 Protective relays and control panels.	E	H	I	NA	S		
12 AC control power inverters							
13 ^{INSTRUMENT POWER SUPPLY AND} 120V AC vital bus distribution equipment.	E	A	K	NA	S		
14 FIRE STOPS	E	ALL	I	NA	S		

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
XXXV. DC Power Systems							
1. All components with safety function							IEEE-308
	E	A	I	C	B		
	EATON ENCL						
a) 125V batteries, battery chargers, and distribution equipment.	E	A	K	NA	S		
b) Cables.	E	A	K	NA	S		
c) Conduit and cable trays and other supports. (Installations containing class 1E cables and other installations whose failure may damage other safety-related items.)	E	ALL	I	NA	S		
d) Battery racks.							
e) Protective relays and control panels.							

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION

<u>Principal Component</u> (a)	<u>Scope of Supply</u> (b)	<u>Location</u> (c)	<u>Category</u> (d)	<u>Quality Group Classification</u> (e)	<u>Quality Assurance Requirements</u> (f)	<u>Principal Construction Code</u> (g)	<u>Remarks</u>
XXXVI. Civil Structures							
1. Primary containment	F	P	I		B	B	III-B
2. Reactor Building (including fuel storage facilities)	F	R	I		HA	B	ACI-318, AISC

Notes appear as separate list at end of table

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TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION (Cont'd)

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
3. Auxiliary Building	E	A	I	NA	B	ACI 318, AISC	
4. Radwaste Building	I	W	NA	NA	S	ACI 318, AISC	
5. Circulating Water Pump House	E	P	NA	NA	S	ACI 318, AISC	
6. Control Center Complex (including cable spreading room)	E	A	I	NA			
7. RHR Complex	E	H	I	NA	B	ACI 318, AISC	
XXXVII. Post LOCA Hydrogen Control System							
1. All components with safety function	E	R	I	B	B	III-2	
XXXVIII. Reactor Building Crane	E	P	I	NA	S	CMAA-70	
XXXIX. Control Center Air Conditioning System							
1. Condenser coil and associated piping	E	A	I	C	B	III-3	
2. Chilled water piping	E	A	I	D	B	B.31.1.0	
3. Other components with safety function	B		I	NA	B	None	
XL. Shore Barrier	E	O	NA	NA	S	None	

Notes appear as separate list at end of table.

XXVI. CIVIL STRUCTURES

B RADIATION SHIELDING E R I NA B ACI 318 AISC

- SACRIFICIAL SHIELDING WALL
- REACTOR BLDG
- AUXILIARY BLDG
- CONTROL CENTER COMPLEX
- MASONRY WALL, SAFETY RELATED

7. SUPPORT TRUSS (RAIL BREAK) E, C, I NA S

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Control Center Air
Conditioning System

3. Isolation valves
4. Isolation dampers
5. Cooling units for
~~supply & return air~~ supply, room
6. Exhaust Comp ~~for exhaust~~
7. Muth zone Units
8. Supply fans
9. Recirculation, Exerg
make up gas filters,
charcoal inlet registers
10. Recirc/Exerg make-up
filters fans
11. Pilot Water Pumps
12. Return fans
13. Associated duct work
14. ~~Ductwork & water meter~~

15. Mech. modulus with
safety, functions

14. Electrical modules with safety functions
17. Cable with safety functions
18. Protected Motors

E	R ₁ A	I	NA	B
E	R ₁ A	I	NA	B
E	R ₁ A	I	NA	B
E	A	I	D	B
E	A	I	NA	B
E	A	I	NA	B
F	A	I	NA	B
F	A	I	NA	B
F	A	I	D	B
F	A	I	NA	B
F	A	I	NA	B
F	R₁A	I		B
F	R ₁ A	I	NA	B
E	R ₁ A	I	NA	B
E	R ₁ A	I	NA	B
E	R ₁ A	I	NA	B

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION

XLI

Principal Component (a)	Scope of Supply (b)	Location (c)	Category (d)	Quality Group Classification (e)	Quality Assurance Requirements (f)	Principal Construction Code (g)	Remarks
MSIV leakage control system							
a) Piping, within RCPB isolation valves.	E	A	I	A	S	III-1	
b) Piping, other upstream system lines.	E	A	I	C	S	III-3	
c) Piping, downstream system from steamline	E	A	I	D⁴	S	III-1	my
d) Piping, other downstream system lines.	E	A	I	C	S	III-3	
e) Valves, within RCPB.	E	A	I	A	S	III-1	
d) Valves, other.	E	A ₁	I	C	S	III-3	
g) Heater.							
h) Blowers.							
e) MECH. MODULES, INSTRUMENTATION WITH SAFETY FUNCTION							
	E	R	I	NA	S	IEEE 344-1975 IEEE 323-1974	
f) INSTRUMENT RACKS	E	R	I	NA	S	IEEE 344-1975	
g) INSTRUMENT PIPING	E	R, A	I	A, C, D ⁴	B	III-3, I	
h) ELECTRICAL MODULES WITH SAFETY FUNCTION	E	A	I	NA	S	IEEE-344-1975	
i) MECHANICAL MODULES	E	A	I	A, D ⁴	S	III, IV	
j) CABLE WITH SAFETY FUNCTION	E	R, A	I	NA	B	IEEE	

TABLE 3.2-1 STRUCTURES, SYSTEMS AND COMPONENTS CLASSIFICATION

<u>Principal Component</u> (a)	<u>Scope of Supply</u> (b)	<u>Location</u> (c)	<u>Category</u> (d)	<u>Quality Group Classification</u> (e)	<u>Quality Assurance Requirements</u> (f)	<u>Principal Construction Code</u> (g)	<u>Remarks</u>
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XLI

POST ACCIDENT SAMPLING

1) SAMPLE ISOLATION VALVES
& PIPING

E

R

I

A, C

S

III-1,3

2 SAMPLING STATION &
TUBING DOWNSTREAM
OF ISOLATION VALVES

GE, E A

NA

D

S

B31.1

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TABLE 3.2-1 STRUCTURES, SYSTEMS, AND COMPONENTS
CLASSIFICATION (Cont'd)

Notes

- (a) A module is an assembly of interconnected components which constitutes an identifiable device or piece of equipment. For example, electrical modules include sensors, power supplies, and signal processors; and mechanical modules include turbines, strainers and orifices.
- (b) GE = supplied by General Electric
E = supplied by the Detroit Edison Company
- (c) Location abbreviations are:
A = Auxiliary Building
C = part of, or within, primary containment
H = RHR complex
M = any other location
O = outdoors onsite
P = Circulating Water Pump House
R = Reactor Building
T = Turbine Building
W = Radwaste Building
- (d) I = The equipment is constructed in accordance with the seismic requirements for the SSE and OBE as described in Section 3.7.
NA = The seismic requirements for the SSE are not applicable to the equipment.
- (e) The structure system or component is constructed in accordance with the codes listed in Table 3.2-2.
- (f) B = The structure system or component meets the QA requirements of 10 CFR part 50, Appendix B, in accordance with the QA Program described in Chapter 17.
- K** = The equipment is constructed in accordance with the seismic requirements as described in Section 3.10